

**INTEGRATED CIRCUIT PACKAGE AND METHOD FOR A
PBGA PACKAGE HAVING A MULTIPLICITY OF
STAGGERED POWER RING SEGMENTS FOR POWER
CONNECTION TO INTEGRATED
CIRCUIT DIE**

10

ABSTRACT OF THE DISCLOSURE

A BGA package having a multiplicity of power segments configured for power connection to integrated circuit die is disclosed. The BGA package substrate includes an integrated circuit die and a ground ring. The substrate also 15 includes a first power ring with a plurality of spaced apart first power ring segments arranged around the die. A second power ring having a plurality of spaced apart conductive second ring segments is also formed around the die. A plurality of vias that penetrate through the substrate are provided to accommodate electrical connections to the segments of the first and second power rings and to 20 the ground ring. The package includes bonding wires for connecting the die to the first and second ring segments and ground ring. Additionally, the package is commonly encapsulated to protect the die and wires. In some implementations, the conductive first ring segments are arranged in staggered configuration relative to the conductive second ring segments with each of the first ring segments 25 having a conductive tab configured so that it passes through spaces between the conductive second ring segments. The tabs electrically connecting the first ring segments to vias.